

# Ziyang Zhou

Ph.D. Candidate in Mechanical Engineering • Soft Robotics and Deployable Structures

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## Research Profile

Mechanical Engineering Ph.D. candidate researching soft and bio-inspired robotics, origami-inspired mechanisms, multistable structures, deployable systems, embodied physical computing, and space robotics.

## Education

### Virginia Polytechnic Institute and State University

Blacksburg, VA

*Ph.D. Candidate in Mechanical Engineering*

*Aug. 2022–Expected May 2027*

### Clemson University

Clemson, SC

*B.S. in Mechanical Engineering; Minor in Mathematical Sciences*

*Aug. 2018–May 2022*

## Publications

### Journal Articles

- [1] **Z. Zhou** and S. Li. *Self-Sustained and Coordinated Rhythmic Deformations with SMA for Controller-Free Locomotion*. **Advanced Intelligent Systems**, 2024.
- [2] V. D., Y. P., **Z. Zhou**, I. Walker, and S. Li. “Golden Ratio Yoshimura” for Meta-Stable and Massively Reconfigurable Deployment. **Philosophical Transactions of the Royal Society A**, 2024.
- [3] J. Wang\*, **Z. Zhou**\*, A. K.\*, and S. Li. *Embodying Physical Computing into Soft Robots*. **Nature Communications**, 2026.
- [4] A. K., Y. P., J. W., **Z. Zhou**, J. R., B. J., S. Li, and N. N. *Spider Web-Inspired Sensing and Computation with Fiber Network Physical Reservoirs*. **Journal of Intelligent Material Systems and Structures**, 2026.
- [5] A. B.\*, B. Z.\*, **Z. Zhou**\*, N. N., and S. Li. *Stochastic Entanglement of Deterministic Origami Tentacles for Robust Robotic Grasping*. **Advanced Science**, 2026.

\*Equal contribution.

### Conference Proceedings

- [1] **Z. Zhou** and S. Li. *Self-Sustained Mechanical Oscillator with SMA Coil for Controller-Free Locomotion*. **Active and Passive Smart Structures and Integrated Systems XVIII**, 2024.
- [2] A. K., Y. P., J. W., **Z. Zhou**, J. R., B. J., S. Li, and N. N. *Physical Reservoir Computing with Compliant Fiber Networks*. **ASME SMASIS**, 2025.
- [3] N. H., **Z. Zhou**, S. Li, and I. Walker. *Plant-Inspired Robot for Adaptive Monitoring across Multiple Time Scales in Congested and Evolving Outdoor Environments*. **IEEE IROS**, 2026.

### Publications In Process

- [1] **Z. Zhou**, Y. P., V. D., I. Walker, and S. Li. *Hyper-Yoshimura: How a Small Modification to a Classical Origami Pattern Programs Sequential Buckling for Self-Packing and Autonomous Reconfiguration*. **Advanced Science**, manuscript in preparation, 2026.
- [2] **Z. Zhou**, Y. P., I. Walker, and S. Li. *Combinatorial Shape Programming in Yoshimura Origami through Asymmetric Metastable States*. **Nature Communications**, manuscript in preparation, 2026.

## Presentations and Invited Talks

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- “Self-Sustained Mechanical Oscillator with SMA Coil for Controller-Free Locomotion.” *SPIE Smart Structures + NDE*, Long Beach, CA, March 2024.
  - “Leveraging Metastability to Create a Deployable and Multifunctional Robotic Crane.” *IEEE ICRA*, Atlanta, GA, May 2025.

## Media Coverage

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- “Virginia Tech Awarded \$2 Million NSF Grant to Develop Shape-Shifting Robots.” *Virginia Tech News*, April 2025. Featured contributions to bio-inspired and deployable robotic systems.

## Honors and Awards

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- **Best Poster Award**, Virginia Robotics Symposium, November 14, 2025.
- **Outstanding Reviewer**, *Biomimetic Intelligence and Robotics*, 2025.

## Professional Service

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### Journal Peer Reviewer

- *Advanced Intelligent Systems*
- *Advanced Robotics Research*
- *Biomimetic Intelligence and Robotics*
- *Nanotechnology and Precision Engineering*

### Conference Peer Reviewer

- *ASME International Mechanical Engineering Congress & Exposition (IMECE)*, 2026
- *International Conference on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME)*, 2025–2026
- *International Conference on Electrical, Computer and Energy Technologies (ICECET)*, 2026
- *International Conference on Electrical and Computer Engineering Researches (ICECER)*, 2026

## Academic Societies

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- American Society of Mechanical Engineers (ASME)
- Institute of Electrical and Electronics Engineers (IEEE)
- Sigma Xi, The Scientific Research Honor Society

## Patents

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- **Ziyang Zhou**. “A Two-Way Anti-Lost Combination Card Set Based on Bluetooth.” Patent application no. ZL201420033810.2.
- **Ziyang Zhou**. “A Findable Key Pendant by Phone Call or Text Message.” Patent application no. ZL201420033808.5.
- S. Li, A. A. Phoenix, N. Naughton, A. Boron, B. Zheng, and **Z. Zhou**. *Origami Tentacle Universal Robotic Gripper*. U.S. Provisional Patent Application No. 64/051,431, filed April 28, 2026.